CLAIMS

1. A traction control system for a vehicle which is constituted so as to drive an engine throttle drive actuator according to a result of sensing an accelerator operation state of the vehicle and thereby cause a target drive force to be generated, the traction control system comprising:

a sensor unit disposed in a rotation mechanism section including a body of rotation positioned in the vehicle body side, for securing a wheel and allowing the wheel to rotate, and the wheel, the sensor unit sensing a first acceleration generated in association with rotation in a direction orthogonal to the rotation axis, and a second acceleration generated in a direction of rotation, and converting a sensing results of the first and second accelerations to a digital value, and transmitting digital data including the digital value;

a monitor apparatus which receives the digital data transmitted from the sensor unit to acquire the sensing results of the first and second accelerations; and

drive means which drives the engine throttle drive actuator based on the sensing results of the first and second accelerations acquired by the monitor apparatus.

2. The traction control system according to claim 1, wherein:

the sensor unit includes means which senses a third acceleration generated in a direction of the rotation axis, converts the sensing result to a digital value, and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which acquires the sensing result of the third acceleration; and

the drive means has means which drives the engine throttle drive

actuator based on the sensing results of the first, second and third accelerations.

3. The traction control system according to claim 2, wherein:

the sensor unit includes means which senses a change of the second acceleration, means which senses the number of rotations per unit time based on the change of the second acceleration, and means which converts the sensed number of rotations to a digital value and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which receives the digital value of the number of rotations from the sensor unit; and

the drive means includes means which drives the engine throttle drive actuator based on the sensing results of the first, second and third accelerations and the sensing result of the number of rotations.

4. The traction control system according to claim 2, wherein:

the sensor unit includes means which senses a change of the first acceleration, means which senses the running speed based on the change of the first acceleration, and means which converts the sensed running speed to a digital value and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which receives the digital value of the running speed from the sensor unit; and

the drive means includes means which drives the engine throttle drive actuator based on the sensing results of the first, second and third accelerations and the sensing result of the running speed.

5. A traction control system for a vehicle which is constituted so as to drive each drive actuator of an engine throttle and a drive torque

distribution mechanism according to a result of sensing an accelerator operation state of the vehicle and thereby cause a target drive force to be generated, the traction control system comprising:

a plurality of sensor units disposed in each of a plurality of rotation mechanism sections including a body of rotation positioned in the vehicle body side, for securing a wheel and allowing the wheel to rotate, and the wheel, respectively, the plurality of sensor units sensing a first acceleration generated in association with rotation in a direction orthogonal to the rotation axis, and a second acceleration generated in a direction of rotation, and converting a sensing results of the first and second accelerations to a digital value, and transmitting digital data including the digital value;

a monitor apparatus which receives the digital data transmitted from the plurality of sensor units to acquire the sensing results of the first and second accelerations; and

control means which controls the drive of a predetermined one from among each said drive actuator based on the sensing results of the first and second accelerations acquired by the monitor apparatus.

6. The traction control system according to claim 5, wherein the drive torque distribution mechanism includes means which distributes to at least one from among the plurality of wheels, the drive torque generated in association with the drive of the engine throttle.

7. The traction control system according to claim 6, wherein the drive torque distribution mechanism includes means which varies the ratio of the drive torque to successive values from 0 to 100.

8. The traction control system according to claim 5, wherein:

the sensor unit includes means which senses a third acceleration generated in a direction of the rotation axis, converts the sensing result to a digital value, and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which acquires the sensing result of the third acceleration; and

the control means has means which controls the drive of a predetermined one from among each said drive actuator based on the sensing results of the first, second and third accelerations.

9. The traction control system according to claim 8, wherein:

the sensor unit includes means which senses a change of the second acceleration, means which senses the number of rotations per unit time based on the change of the second acceleration, and means which converts the sensed number of rotations to a digital value and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which receives the digital value of the number of rotations from the sensor unit; and

the control means has means which controls the drive of a predetermined one from among each said drive actuator based on the sensing results of the first, second and third accelerations and the sensing result of the number of rotations.

10. The traction control system according to claim 8, wherein:

the sensor unit includes means which senses a change of the first acceleration, means which senses the running speed based on the change of the first acceleration, and means which converts the sensed running speed to a digital value and transmits the digital value, included in the digital data, to the monitor apparatus;

the monitor apparatus includes means which receives the digital value of the running speed from the sensor unit; and

the control means has means which controls the drive of a predetermined one from among each said drive actuator based on the sensing results of the first, second and third accelerations and the sensing result of the running speed.

11. The traction control system according to claim 9, wherein the control means has means which controls the drive of a predetermined actuator from among each said drive actuator so that the difference of the number of rotations becomes equal to or smaller than the predetermined value, when the difference between the numbers of rotations sensed by two or more predetermined sensor units from among the plurality of sensor units is larger than a predetermined value.

12. The traction control system according to claim 10, wherein the control means has means which controls the drive of a predetermined actuator from among each said drive actuator so that the difference of the running speed becomes equal to or smaller than the predetermined value, when the difference between the running speeds sensed by two or more predetermined sensor units from among the plurality of sensor units is larger than a predetermined value.

13. The traction control system according to claim 1, wherein the sensor unit is disposed in the body of rotation.

14. The traction control system according to claim 1, wherein:

the sensor unit includes means which receives a radio wave of a first frequency, means which converts the energy of the received radio

wave of the first frequency to electric drive energy, and means which is operated by the electric energy to transmit the digital data by use of a radio wave of a second frequency; and

the monitor apparatus includes means which radiates the radio wave of a first frequency, means which receives the radio wave of a second frequency, and means which extracts the digital data from the received radio wave of the second frequency.

15. The traction control system according to claim 14, wherein the first frequency is identical to the second frequency.

16. The traction control system according to claim 1, wherein:

the sensor unit includes storage means which includes stored therein identification data unique to the self, and means which transmits the identification data included in the digital data; and

the monitor apparatus includes means which identifies the rotation mechanism section based on the identification data.

17. The traction control system according to claim 1, wherein the sensor unit includes a semiconductor acceleration sensor, having a silicon piezo diaphragm, for sensing accelerations orthogonal to each other.

18. The traction control system according to claim 1, further comprising a number-of-rotations sensing mechanism, disposed in the rotation mechanism section, for sensing a first number of rotations per unit time associated with the rotation of the wheel and transmitting the sensing result to the monitor apparatus, wherein:

the sensor unit includes means which senses the change of the

second acceleration, means which senses a second number of rotations per unit time based on the change of the second acceleration, and means which converts the sensed second number of rotations to a digital value and transmits the digital value, included in the digital data, to the monitor apparatus; and

the monitor apparatus includes means which receives the sensing result of the first number of rotations from the number-of-rotations sensing mechanism, means which receives the sensing result of the second number of rotations from the sensor unit, and determination means which determines whether or not the first number of rotations is identical to the second number of rotations.

19. The traction control system according to claim 18, wherein the number-of-rotations sensing mechanism includes a disk, disposed in the body of rotation, which includes a plurality of concaves and convexes spaced equally around the circumferential surface thereof, and means which generates magnetic field and senses a voltage associated with a change of the magnetic field.

20. The traction control system according to claim 18, wherein:

the number-of-rotations sensing mechanism includes means which converts the sensing result of the first number of rotations to a digital signal;

the monitor apparatus includes means which converts the sensing result of the second number of rotations to a digital signal; and

the determination means has means which determines based on the digital signals of the first number of rotations and the second number of rotations, whether or not the first number of rotations is identical to the second number of rotations.

21. The traction control system according to claim 20, wherein the conversion means has means which multiplies the digital value of the second number of rotations by a predetermined value and converts the digital value to a digital signal having a period being the reciprocal number of the multiplication value.

22. The traction control system according to claim 20, wherein the determination means has means which determines that the first number of rotations is identical to the second number of rotations, when a vibration of the digital signal of the second number of rotations is generated every predetermined multiple of the period of the digital signal of the first number of rotations.

23. The traction control system according to claim 1, further comprising a number-of-rotations sensing mechanism, disposed in the rotation mechanism section, for sensing a first running speed per unit time associated with the rotation of the wheel and transmitting the sensing result to the monitor apparatus, wherein:

the sensor unit includes means which senses a change of the first acceleration, means which senses a second running speed per unit time based on the change of the first acceleration, and means which converts the sensed second running speed to a digital value and transmits the digital value, included in the digital data, to the monitor apparatus; and

the monitor apparatus includes means which receives the sensing result of the first running speed from the number-of-rotations sensing mechanism, means which receives the sensing result of the second running speed from the sensor unit, and determination means which determines

whether or not the first running speed is identical to the second running speed.

24. The traction control system according to claim 23, wherein the number-of-rotations sensing mechanism includes a disk, disposed in the body of rotation, having a plurality of concaves and convexes spaced equally around the circumferential surface thereof, and means which generates magnetic field and senses a voltage associated with a change of the magnetic field.

25. The traction control system according to claim 23, wherein:

the number-of-rotations sensing mechanism includes means which converts the sensing result of the first running speed to a digital signal;

the monitor apparatus includes means which converts the sensing result of the second running speed to a digital signal; and

the determination means has means which determines based on the digital signals of the first running speed and the second running speeds, whether or not the first running speed is identical to the second running speed.

26. The traction control system according to claim 25, wherein the conversion means has means which multiplies the digital value of the second running speed by a predetermined value and converts the digital value to a digital signal having a period being the reciprocal number of the multiplication value.

27. The traction control system according to claim 25, wherein the determination means has means which determines that the first number

of rotations is identical to the second number of rotations, when a vibration of the digital signal of the second number of rotations is generated every predetermined multiple of the period of the digital signal of the first number of rotations.

28. A sensor unit which senses an acceleration generated in association with rotation, disposed in a rotation mechanism section including a body of rotation positioned in the vehicle body side, for securing a wheel and allowing the wheel to rotate, and the wheel, the sensor unit being included in a traction control system for a vehicle which is constituted so as to drive an engine throttle drive actuator according to a result of sensing an accelerator operation state of the vehicle and thereby cause a target drive force to be generated, the sensor unit comprising:

means which senses a first acceleration generated in association with rotation in a direction orthogonal to the rotation axis, and a second acceleration generated in a direction of rotation;

means which converts the sensing results of the first acceleration and the second acceleration to a digital value; and

means which transmits digital data including the digital value.